



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

87

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/762,077

06/03/2002

Edward A. Johnson

56326-032

7876

7590

10/19/2004

Mark G Lappin
McDermott Will & Emery
28 State Street
Boston, MA 02109

EXAMINER

JOHNSTON, PHILLIP A

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/762,077	Applicant(s) JOHNSON ET AL.	
	Examiner Phillip A Johnston	Art Unit 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

1. This Office Action is submitted in response to Amendment dated 7-23-2004, wherein claim 22 has been amended. Claims 1-29 are pending.

Claims Rejection – 35 U.S.C. 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 28, and 29, are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,297,511, to Syllaos.

Syllaios (511) clearly discloses;

(a) A planar emitter/detector having a $\Delta\lambda/\lambda < 0.1$. Syllaos (511) discloses in one embodiment an input power of approximately one-tenth of a watt (W) of input power, a radiant power of approximately two mmW/cm² is achieved on a narrow two-tenths of a micrometer (μm) spectral band. See Column 6, line 18-22.

Also that one embodiment of the present invention is operable to emit IR radiation with a wavelength of three to fourteen micrometers (μm). See Column 2, line 5-7. See Column 2, line 5-7; Column 6, line 18-27.

As a result, $\Delta\lambda/\lambda = 0.2 \mu\text{m}/3 \mu\text{m} = 0.066$, as recited in Claims 1 and 28.

(b) An emitter/detector array having a $\Delta\lambda/\lambda < 0.1$. See Column 6, line 49-67; and Column 7, line 1-7.

Claims Rejection – 35 U.S.C. 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,864,144 to Laine, in view of Syllaos, U.S. Patent No. 6,297,511.

Laine (144) discloses the following;

(a) An emitter with a planar resistive foil element. See Column 4, line 1-32.

(b) An emitter having a broad spectral range. See Column 4, line 1-32.

Art Unit: 2881

(c) Emission spectral width determined by surface features, as recited in Claims 3,4,6, and 8. See Column 10, line 14-67; and Column 11, line 1-10.

(d) Etching the element. See Column 4, line 1-32.

(e) The use of semiconductor emitter materials. See Column 11, line 3-21.

Laine (144) as applied above fails to teach the use of a planar emitter/detector having a $\Delta\lambda/\lambda < 0.1$, as recited in Claim 1. However, Syllaos (511) discloses above a planar emitter/detector having a $\Delta\lambda/\lambda < 0.1$. See Column 2, line 5-7; Column 6, line 18-27.

Therefore it would have been obvious to one of ordinary skill in the art that the emitter of Laine (144) can be modified to use the emitter/detector of Syllaos (511), to emit IR radiation over a broad spectral band, which can be used in gas or liquid sensors and various other spectroscopic applications.

6. Claims 15-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,584,557 to Alexay, in view of Syllaos, U.S. Patent No. 6,297,511.

Alexay (557) discloses;

(a) An emitter located within a gas cell having two reflectors to provide multiple paths to and from the emitter and detector, while passing through a gas test region, as recited in Claims 15,19, and 23. see Column 4, line 18-67; and Column 5, line 1-4.

(b) A computer for determining the concentration of components for the sample being analyzed. See Column 6, line 19-28.

Alexay (557) as applied above fails to teach the use of a planar emitter/detector having a $\Delta\lambda/\lambda < 0.1$, as recited in Claims 15 and 23. However, Syllaos (511) discloses

Art Unit: 2881

above a planar emitter/detector having a $\Delta\lambda/\lambda < 0.1$. See Column 2, line 5-7; Column 6, line 18-27.

Therefore it would have been obvious to one of ordinary skill in the art that the gas cell of Alexay (557) can be modified to use the emitter/detector of Syllaos (511), to emit IR radiation over a broad spectral band, which can be used in gas or liquid sensors and various other spectroscopic applications.

Examiners Response to Arguments

7. Applicant's arguments filed 7-23-2004 have been fully considered but they are not persuasive.

Regarding all Arguments;

Applicant states that "Applicants respectfully assert that Syllaos fails at least to disclose or suggest element (C) of applicant's independent claim 1, namely "a planar filament emission/detection element characterized by a emission/detection width of d/l less than about 0.1, where l is the wavelength of said radiation."

Accordingly, applicants respectfully assert that Syllaos is not a proper basis for a 35 USC §102(e) rejection, as the reference fails to disclose each and every element of the applicants' claimed invention."

The applicant is respectfully directed to Syllaos (511), Column 3, line 49-60; which states,

The depth of cavity 50 between reflector 30 and membrane 20 may be sized to produce a desired frequency of IR radiation. For example, cavity 50 may be sized so that IR emitter 10 produces IR radiation at a frequency that can be detected by a corresponding IR detector (not explicitly shown). More specifically, cavity 50 can be sized to emit IR radiation in the mid-wavelength infrared (MWIR) window, which is the 3 micron to 5 micron wavelength range, and the long wavelength infrared (LWIR) window, which is the 8 micron to 12 micron wavelength range. Emitter 10 may also emit IR radiation having wavelengths longer than 12 microns if desired.

The applicant is also respectfully directed to Syllaos (511), Column 6, line 18-22, which states; For example, in one embodiment of the present invention, for an input power of approximately one-tenth of a watt (W) of input power, a radiant power of approximately two mmW/cm² is achieved on a narrow two-tenths of a micrometer (μm) spectral band.

The examiner has interpreted from the Syllaos (511) reference above that the emission width Δl of the emitter 10 in accordance with Syllaos (511) is 0.2 μm, which when divided by any emission wavelength in the mid wavelength window (3 micron to 5 micron) will result in a range of values for $\Delta l/l = .066$ to $.04$; each of which is clearly less than 0.1, as recited in claim 1.

In addition, it is important to note that the "mid-wavelength window" disclosed in the Syllaos (511) references above is not the emission band width of the Syllaos (511) device, but rather the well known infrared wavelength range for detection of gases. See for example Column 8, line 61-67 in Lieberman, U.S. Patent No. 6,650,810

Art Unit: 2881

below, which is attached herein to substantiate the definition of "mid-wavelength range" used in Syllaos (511).

Lieberman, U.S. Patent No. 6,650,810, Column 8, line 61-67; which states, The infrared spectra of most chemical compounds at infrared wavelengths between about 3 micrometers (μm) and 8 μm are typically unique. The mid-wavelength range for most chemical compounds is often called the "fingerprint region" of the optical spectrum. The mid-infrared region or fingerprint region is routinely used to identify and quantify the chemical contents of unknown samples of gas.

Conclusion

8. The Amendment filed on 7-23-2004 under 37 CFR 1.131 has been considered but is ineffective to overcome the Syllaos (511) references.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2881

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications should be directed to Phillip Johnston whose telephone number is (571) 272-2475. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor John Lee can be reached at (571) 272-2477. The fax phone number for the organization where the application or proceeding is assigned is 703 872 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PJ
October 15, 2004


JOHN R. LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800